

ABSTRAK

PEMBERIAN *AERATED COMPOST TEA* YANG DIINDUKSI INOKULUM *Aspergillus* sp. PADA MEDIA *SOILLESS CULTURE SYSTEM* (SCS) TERHADAP PERTUMBUHAN AWAL DAN FISIOLOGIS BIBIT KAKAO (*Theobroma cacao* L.)

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Kakao (*Theobroma cacao* L.) merupakan komoditas tanaman perkebunan yang memiliki nilai ekonomi tinggi dan berperan sebagai sumber devisa negara. Kendala utama dalam budidaya kakao berkelanjutan di Indonesia adalah tingginya tingkat kematian bibit pada tahap pembibitan. Strategi peningkatan kualitas bibit dapat dilakukan melalui media tanam dan pemberian pupuk organik yang mengandung mikroorganisme bermanfaat. Penelitian ini bertujuan untuk mengetahui kualitas kimia dan pengaruh pemberian *Aerated Compost Tea* (ACT) yang diinokulasi dengan *Aspergillus* sp. pada media *Soilless Culture System* (SCS) terhadap karakter pertumbuhan awal dan fisiologi kakao. Penelitian dilaksanakan pada bulan April hingga Juni 2025 di Laboratorium Botani, Fakultas Matematika dan Ilmu Pengetahuan Alam Universitas Lampung. Penelitian menggunakan Rancangan Acak Lengkap (RAL) dengan empat perlakuan dan enam kali ulangan. Pengamatan dilakukan terhadap karakter pertumbuhan dan fisiologi bibit kakao berumur 30 hari. Data dianalisis varians ANOVA pada α 5%, dilanjutkan dengan uji Tukey untuk mengetahui perbedaan antar perlakuan. Hasil analisis kimia ACT yang diinduksi inokulum *Aspergillus* sp. menunjukkan kandungan C-Organik (0,20%), N-total (0,01%), P-Total (0,12%) K-Total (0,23%) dan Rasio C/N (20% termasuk kategori ideal). Hasil pemberian ACT berpengaruh signifikan terhadap pertumbuhan awal dan fisiologis bibit kakao dengan konsentrasi terbaik pada perlakuan P2 (100 mL).

Kata Kunci: *aerated compost tea*, *Aspergillus* sp., kakao, media *soilless culture system*.

ABSTRACT

THE APPLICATION OF AERATED COMPOST TEA INDUCED BY *ASPERGILLUS* sp. INOCULUM IN SOILLESS CULTURE SYSTEM (SCS) MEDIA ON THE EARLY AND PHYSIOLOGICAL GROWTH OF CACAO SEEDLINGS (*Theobroma cacao* L.)

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Cocoa (*Theobroma cacao* L.) is a plantation crop commodity with high economic value and serves as a source of foreign exchange. The main obstacle in sustainable cocoa cultivation in Indonesia is the high mortality rate of seedlings at the nursery stage. Strategies to improve seedling quality can be done through planting media and the provision of organic fertilizers containing beneficial microorganisms. This study aims to determine the chemical quality and the effect of the administration of Aerated Compost Tea (ACT) inoculated with *Aspergillus* sp. in Soilless Culture System (SCS) media on the initial growth and physiological characteristics of cocoa. The study was conducted from April to June 2025 at the Botany Laboratory, Faculty of Mathematics and Natural Sciences, University of Lampung. The study used a Completely Randomized Design (CRD) with four treatments and six replications. Observations were made on the growth and physiological characteristics of 30-day-old cocoa seedlings. Data were analyzed using ANOVA variance at 5% α , followed by Tukey's test to determine differences between treatments. The results of the chemical analysis of ACT induced by *Aspergillus* sp. inoculum. shows the content of C-Organic (0.20%), N-total (0.01%), P-Total (0.12%) K-Total (0.23%) and C/N Ratio (20% is included in the ideal category). The results of ACT administration have a significant effect on the initial growth and physiology of cocoa seedlings with the best concentration in the P2 treatment (100 mL).

Keywords: aerated compost tea, *Aspergillus* sp., cocoa, soilless culture system media.